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For confidential circulation to plant pathologists in Australia. PLEASE DO NOT ABSTRACT.

COMMONWEALTH MYCOLOGICAL INSTITUTE
30 SEP 1957

PLANT DISEASE NOTES.

FIELD AND FODDER CROPS.

SOME CHYTRIDS ON SUBTERRANEAN CLOVER AND BENT GRASS:

Specimens of subterranean clover sent in from Finley were observed to be carrying numerous small galls on the petioles, leaf blades, flower stalks and the sterile outer flowers of the seed heads. Each gall contained one reddish-brown resting spore, 120-200μ in diameter, of Synchytrium aureum Schroet.

Some larger galls were present on the same plants and these were found to contain masses of smaller, reddish-brown, resting spores. These spores were approximately 40μ in diameter and the fungus has been identified as Physoderma trifolii (Passer.) Karling, which was first reported in Australia by White et al. (Jour. Aust. Inst. Agric. Sci., 22 : 204-205, 1956) from Western Australia and has since been recorded from other localities in south-western N.S.W.

Seedlings of bent grass (Agrostis tenuis) quite commonly die off in patches in coastal N.S.W., usually showing a yellow and red discolouration of the leaves as they do so. The cause of this has not been determined, although the roots of affected seedlings have been observed to contain large numbers of resting spores of Cladochytrium sp. or Olpidium brassicae Wor. These, however, have also been observed in the roots of apparently healthy seedlings. It is thought that these fungi, if parasitic, may only be able to attack very young roots, the plants being killed only when attacked at a very early stage.

- P.G. VALDER.

Department of Agriculture,
Sydney.

REQUEST FOR CLOVER PATHOGENS:

Recently a request has been received from Dr. W.C. McDonald, Plant Pathologist (Forage Crops), Department of Agriculture, Plant Pathology Laboratory, Box 322, C/- University of Manitoba, Winnipeg, Canada, for Cultures of two fungi causing disease in clovers. His letter states:-

"I am doing some work with the Pseudoplea-Stemphylium complex on alfalfa and the clovers and would like to obtain isolates of Pseudoplea trifolii and Stemphylium botryosum from white clover and alfalfa particularly, or any other leguminous hosts."

Cultures can be sent direct to Dr. McDonald at the above address.

- J. WALKER.

Department of Agriculture,

Sydney.

VEGETABLES.

VERTICILLIUM DAHLIAE IN CAULIFLOWERS:

Cauliflower specimens submitted recently to the Waite Institute for Diagnosis were infected with Verticillium dahliae. Infected plants were scattered over the entire planting with a tendency to patchiness. There was a marked varietal difference in susceptibility and in one unknown variety the grower estimated that 30% of the plants were infected. The vascular tissue of infected plants was discoloured, but there was no obvious sign of wilting, and damage did not appear to be serious. The main disadvantage was a woodiness of the stem, making it difficult to cut. This is the first record of V. dahliae infecting cauliflowers in South Australia.

- A. KERR.

Waite Institute,

Adelaide.

SUSPECTED BLACK RING DISEASE OF CRUCIFERS:

During a recent inspection of a seed merchant's trial grounds at Dundas in the Sydney Metropolitan Area, crucifer plants were observed showing symptoms similar to those described for black ring disease (Tompkins et al. J. Agric. Res. 57: 12: 929-943, 1938) caused by a virus of the turnip virus 1 group (Pound & Walker. J. Agric. Res. 71: 6: 255-278, 1945).

The disease was present on broccoli, cabbage and cauliflower. On one line of broccoli (Waltham No. 29) severe infection had resulted in extensive blighting of outer and middle leaves, while less severe damage was present on Morse Early and Morse Medium broccoli. A trace infection was also present on Short's cauliflower and Enkhuizen Glory cabbage.

Tests are in progress to establish the identity of the disease.

- R.J. CONROY.

Department of Agriculture.

Sydney.

FRUIT.

BORON TOXICITY IN CITRUS:

During the summer of 1956 citrus trees in a sawdust mulched orchard at Baulkham Hills showed severe symptoms of boron toxicity; including prominent leaf pattern, defoliation and die-back. This diagnosis was confirmed by chemical analysis. The pattern of development of the trouble was somewhat erratic in the orchard. In some parts two rows of trees were affected on adjacent sides only, and trees further down the rows were without symptoms. The trouble was finally traced to the sawdust mulch. Sawdust has been used with highly satisfactory results as a mulch in this orchard for the last 12 years, the last application being just prior to the heavy rains of February-March 1956. Enquiry revealed that softwood timber is sometimes treated with sodium borate, for the control of the powder post bettle, and it is evident that contaminated sawdust must have been included in some of the loads used in the last application.

- LILIAN R. FRASER.

Department of Agriculture.

Sydney.

A MYCOSPHAERELLA ASSOCIATED WITH SEPTORIA DEPRESSA:

Some years ago Dr. T.B. Kiely made collections of citrus leaves from various parts of western N.S.W. with the object of determining whether the black spot fungus Guignardia citricarpa was present in them in the latent form. The treatment he used in an attempt to develop up the perfect stage of Guignardia in these leaves resulted in the appearance of a Mycosphaerella on a collection of lemon leaves from an orchard at Barooga. Single ascospore cultures which he made appeared to be identical with cultures of Septoria depressa from diseased fruit.

In November last year collections of fallen lemon leaves from the same Barooga orchard which had overwintered beneath the trees and from fallen orange leaves from a Leeton orchard were found to be very heavily covered with the perithecia of a similar Mycosphaerella. Single ascospore cultures have been used in inoculation trials to determine the connection between this fungus and Septoria depressa.

- LILIAN R. FRASER.

Department of Agriculture,

Sydney.

APPLE RING SPOT:

Granny Smith apples from an orchard in the Huon Valley developed severe discolouration of the skin this year. There were three main symptoms;
(a) Vertical streaks of russet about 1. cm. in width at the widest point near the middle of the apple. The russet streaks were fringed by small irregular patches of dark brown-colcured skin.
(b) Patches of dark brown discolouration, tending to be circular but often irregular in outline. These brown patches sometimes surrounded a small heavily russeted area. Diameter roughly $\frac{1}{2}$ - 1 cm.
(c) Concentric thin circles of dark brown discolouration. Circles were often incomplete giving a thumb-mark effect. The radius of the largest arc was about 1 cm.

These symptoms correspond to Henderson spot or apple ring spot as described by Atkinson, Chamberlain and Hunter (N.Z. J. Sci. Tech. A.35: 6: 478-482, 1954). This is the first definite record of the condition, which is thought to be of virus origin, in Tasmania. Two years ago Granny Smiths in another orchard developed suspicious symptoms but they were not sufficiently clear to allow definite diagnosis. The symptoms have not reappeared.

Grafting experiments are planned to determine varietal susceptibility and to check that the condition is graft transmissable.

- J.R. WARD.

Department of Agriculture,

Hobart.

NOTES ON APPLE FUNGICIDE TRIALS IN TASMANIA 1956-57:

Weather conditions during the spring of 1956 were fairly wet, there being 12 periods, between the first week of October (when ascospore discharges of Venturia inaequalis first reach significant intensity) and the new year, when trees were wet long enough for infection to become established. The summer was dry, and little or no infection developed after Christmas.

The efficiency of modern spray materials and schedules was demonstrated by the fact that the average incidence of black spot following schedules of the sulphurs, thiram or captan was about 3 to 10%, compared with over 50% following a schedule of Karathane. Karathane appears to be ineffective against black spot, though there were no unsprayed checks. In one schedule, P.M.F. was applied within 48 hours of periods when trees remained wet for 12 hours or more. This resulted in a reduction in leaf spot compared with all other treatments, but fruit spot was not significantly different from that achieved by schedules of thiram and captan. P.M.F. whether used in 6 normal preventive applications or in 12 "after rain" applications, caused russeting equivalent to that resulting from a full schedule of lime sulphur and colloidal sulphur, which was significantly greater than that in all other schedules.

Powdery mildew control was the same from each of the three schedules, lime sulphur - colloidal sulphur, Karathane, and captan plus 2 lbs. colloidal sulphur. Mildew control from all schedules where sulphur or Karathane was not included was inferior. There was no increase in russet when captan and 2 lbs. colloidal sulphur were mixed and applied together.

No ripe spot (Gloeosporium spp.) had developed at picking time, which, because of seasonal and marketing conditions, was a month earlier than in the 1955-56 season.

- J.R. WARD.

Department of Agriculture,

Hobart.

BROWN ROT IN STONE FRUITS:

Recent investigations into the build up of the spore population of Sclerotinia fructicola, have shown that, from a few early foci of infection, the inoculum increases considerably over a few weeks, if conditions are favourable. Since the conidia are deposited on fruit surfaces surrounding the infection foci, the numbers of viable conidia concealed among the surface hairs on healthy fruit can reach a very high level depending on (a) distance from infection source and (b) interval of time after first appearance of fructifications on infection source.

The number of conidia isolated from various batches of healthy peaches varied from 112 per peach to 3,500 per peach depending on the two factors mentioned above.

The presence of these concealed conidia, in such large numbers, constitutes a grave danger to the fruit crop, and is one of the main causes of sudden outbreaks of brown rot, under certain favourable conditions, (a) on the tree or (b) in storage or transport. In order to counteract this danger a timely spraying programme is necessary. This could be successfully developed under the guidance of a forecasting system, which would be based not only on environmental factors, but on the level of concealed conidia found to be present on fruit surfaces in certain selected areas.

- K.O. MULLER

and

- S.M.R. JEROME.

C.S.I.R.O.,

Canberra.

USE OF CAPTAN AGAINST BROWN ROT IN PEACHES:

In a statistically designed experiment on control of brown rot (*Sclerotinia fructicola*) in peaches in the 1953-54 season, captan was compared with lime sulphur, thiram and ziram. Sprays were applied fortnightly for six weeks before harvest.

Results were:

Captan (0.125%)	29.9% mean incidence
Lime sulphur (0.8 to 1%)	53.5% " "
Thiram (0.12%)	39.3% " "
Ziram (0.12%)	39.2% " "

The difference necessary for significance was 12.2 (1%) and 9.0 (5%).

Good control was obtained in 1954-55 with captan at 0.1%.

- K.N. SHEA.

Department of Agriculture & Stock,

Stanthorpe, Queensland.

PRE-HARVEST SPRAYING AGAINST BROWN ROT:

Peaches from the Stanthorpe district are commonly affected by brown rot (Sclerotinia fructicola). Experiments by various officers in Queensland since 1948 have shown indications of improved control if a spray is applied close to harvest. An experiment conducted in the 1954-55 season included a test of the efficacy of spraying on the day before picking, following a normal control schedule. The fruit were examined 10 days after being picked as apparently sound fruit.

Results (in mean number of fruit rotted):

	Thiram 0.12%	Captan 0.1%	Captan 0.05%	Unsprayed
With preharvest spray	17.3	16.4	16.1	43.0
Without " "	34.0	21.3	24.2	

The difference is significant for thiram but not for captan.

- K.N. SHEA.

Department of Agriculture & Stock,

Stanthorpe, Queensland.

GRAPE DEAD ARM:

In the Murrumbidgee Irrigation Areas last season, the late winter and spring weather was unusually cool and moist. This favoured infection of new cane growth, foliage and fruit bunches with the dead arm fungus Phomopsis viticola (R.H. Taylor, A.P.D.R. 4: 3 : 35, 1952). Damage to the crop was most severe in the case of Palomino and Waltham Cross, which were generally affected throughout the area. In some crops of Cornichon also, bunches were damaged. Heavy infection of canes is expected to cause die-back during winter and to increase pruning difficulties. Varieties which showed some infection of canes, but not of fruit, included Frontignac, sultana, currant, Pedro Ximines, Grenache, O'Hanez, Emperor, Valensi, Madeira, Doradillo, Rutherglen Tokay, White Grenache and Black Malaga.

Though the disease had not previously been recorded in the M.I.A. it is evident that the fungus must have been generally present throughout the area as an inhabitant of dead cane stubs.

- LILIAN R. FRASER.

Department of Agriculture,

Sydney.

SUSPECTED BLACK MEASLES ON VINES:

Symptoms extremely suggestive of black measles were reported to have occurred on a number of sultana vines at Koraleigh this season.

The leaves showed a conspicuous interveined yellow spotting and the berries were marked with dark coloured spots and blotches. This disease has not previously been seen in N.S.W. In California it is attributed, somewhat tentatively, to a wood decay fungus which enters through pruning cuts.

- LILIAN R. FRASER.

Department of Agriculture,

Sydney.

OLIVE FRUIT SPOT:

Cercospora cladosporioides was reported as the cause of a fruit spot of olives in the Sydney Metropolitan Area for the first time in N.S.W. in autumn 1953 by P.G. Valder (A.P.D.R. 5 : 3 : 35). At that time it was not known to occur in western N.S.W. However, during the winter of 1956 in orchards at Stony Point and Yanco in the Murrumbidgee Irrigation Areas, olives of the Verdale variety were attacked and 80-95% of the crop was lost. At Wagga Agricultural College 10% of the Verdale crop was badly affected. With the exception of Mission, which was slightly affected, no other variety grown in these orchards appeared to be susceptible.

The disease development followed an extremely wet period in autumn and winter 1956. Although the Cercospora fruit spot had not previously been observed in the M.I.A. or at Wagga, this widespread outbreak indicates that the fungus must have been present, probably at a low level, in its inconspicuous leaf spot form, on all susceptible trees.

- LILIAN R. FRASER.

Department of Agriculture,

Sydney.

ORNAMENTALS.

CHRYSANTHEMUM ASPERMY VIRUS DETECTED IN SOUTH AUSTRALIA:

In the course of routine quarantine examination of imported chrysanthemum plants grown by a commercial nurseryman, a virus, which appears to be identical with chrysanthemum aspermy virus, was isolated from six different varieties. Stunting was the only noticeable symptom on infected chrysanthemum. The virus was readily sap transmissable and produced severe leaf deformation and enations on N. glutinosa; a systemic mottle on petunia; small chlorotic local lesions on Chenopodium amaranticolor; and stimulated the shooting of axillary buds in both tomato and tobacco. In all of these properties, and in its thermal inactivation point of 50°C, the virus closely resembled the aspermy virus.

The chrysanthemum aspermy virus has not been recorded in Australia and in view of its wide host range and aphid transmissibility its detection in imported ornamental crops could be important.

Note: Waite Institute has ample stocks of Chenopodium amaranticolor seed obtained originally from N. Hollings, Hertfordshire.

Waite Institute, - N. CROWLEY.

Adelaide.

MISCELLANEOUS NOTES.

ADDITIONAL HOST OF EUTYPA ARMENIACAE:

In January 1957, during a routine inspection of a vineyard at Modbury, South Australia, perithecia resembling those formed by E. armeniacae on dead apricot wood (M.V. Carter, Jour. Dept. Agric. S.A. 59: 178-184 (1955)) were noted on dead vine arms (M.V. Carter, Jour. Dept. Agric. S.A. (in press)(June 1957)). Subsequent searching has shown that this occurs throughout the non-irrigated vine-growing districts of this State and is likely to extend into south western Victoria, as is the case with fructifications on apricot wood.

Cross-inoculations have shown that single-ascospore isolates from perithecia ex vine wood are fully pathogenic to apricot. The effect of the fungus on the vine host is at present under investigation and will be reported in detail elsewhere.

- M.V. CARTER.

Waite Institute,

Adelaide.

SURVIVAL OF NEMATODES IN SOIL SAMPLES DURING STORAGE:

Because of the lengthy process necessary for the sieving of nematodes from soil and the determination of the species present, a considerable time often elapses between collection of soil samples and examination of phytoparasitic specimens. A method for keeping the nematode sample as similar as possible to its original state is desirable. Accordingly two methods of keeping nematodes were tested.

A. Samples were kept in plastic bags in a cool room maintained at 4°C.

B. Samples were kept in plastic bags on a bench in the laboratory.

The soil was taken from a site approximately 2 yards from a creek under turf consisting chiefly of couch grass (Cynodon dactylon). Roots of weeping willows (Salix sp;) were scattered throughout the soil. The soil was known to contain a high population of Pratylenchus scribneri - a root lesion nematode, as well as various saprophytic species. The plastic bags maintained the soil in a moist condition throughout the period of testing.

Results.

Date of Sieving	Numbers of P. scribneri per 500 gm. soil.	
	Sample A	Sample B
16/4/57	2076	2076
23/4/57	2014	1866
15/5/57	1870	1652

In the soil maintained on the laboratory bench 20% of the population of P. scribneri had died in 4 weeks, while in the cool room 10% had died. In addition the numbers of Rhabditis sp. in sample B had increased enormously, while in sample A they had decreased slightly.

- J.M. FISHER.

Waite Institute,

Adelaide.

SIXTH COMMONWEALTH MYCOLOGICAL CONFERENCE, 1959:

In connection with the above, Dr. J.C.F. Hopkins, Director, C.M.I., has written to ascertain what ideas plant pathologists in Australia might have on (a) subjects for discussion (b) arrangements for the Conference.

I would be glad to receive suggestions from all States.

I have replied on behalf of N.S.W. indicating that the 1959 Conference should be held in London, but at some future date some other Commonwealth country could be invited to act as host. It was stated too that we would like to see continuity in subjects discussed with the Fifth Conference, e.g. Polysora rust, eradication of plant diseases, fungicides, antibiotics. It was considered that virus diseases could not be left off the programme and that we in New South Wales would welcome a review of virus diseases of grapevines and also of deciduous fruits. Other subjects mentioned were diseases of pasture plants and barberry eradication in relation to its effect in stablising the rust race position.

- C.J. MAGEE.

Official Correspondent C.M.I

Department of Agriculture,

Sydney.